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ABSTRACT

A study examined the feasibility of using slide-tape teaching strategies to enhance affective work competencies in economically disadvantaged students in grades 9-12 from the satellite school serving the Joplin R-VIII School District in Missouri. Twenty-nine alternative school students attending the satellite school received training designed to enhance their affective work competencies. This training, which was in the form of slide-tape affective work competencies modules (ACTWMs), provided information on five topics (ambition, self-control, organization, enthusiasm, and conscientiousness) as well as a summary and a review. After completing the training, these students were compared with students from traditional high schools (students who were not given ACTWMs) with respect to affective work competencies and general academic achievement. Because of the small sample size, a matched pairs posttest-only design was selected for the Abridged Affective Work Competencies Inventory and the Wide Range Achievement Tests), it was determined that the slide-tape method of teaching affective work competencies was not effective with these students. Therefore, recommendations were made calling for research to determine other methods with more potential for integration into other educational activities. (MN)

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TEACHING AFFECTIVE WORK COMPETENCIES TO ALTERNATIVE HIGH SCHOOL STUDENTS: THE TESTING OF AN INSTRUCTIONAL STRATEGY

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FOREWORD

The Leadership Development Program of the University of Missouri-Columbia is under contract to provide teaching, research, and service projects for the Missouri Division of Manpower Planning. Administered by the Department of Practical Arts and Vocational-Technical Education, these projects render professional development, analytical research, and other service to the funding Agency. The research reported herein has been completed in partial fulfillment of these contracted activities. Department of Labor representatives, prime sponsor planners, employment and training program operators, vocational educators and others interested in employment and training research should have particular interest in the findings of this study.

Employment and training as a developing profession is in need of salient research findings. The profession is indebted to Dr. Paul Brauchle and Dr. Gregory Petty for the research efforts reported in this paper. Special appreciation is also extended to Mr. John W. Schell of the Missouri Department of Elementary and Secondary Education, Dr. Robert Wolf of the Joplin R-VIII School District for their support of the project, to Ms. Marguerite Hubbs, alternative school director, her counseling staff, and to counselors in the Joplin school system who played an indispensable role in collecting the data for this investigation.

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INTRODUCTION

In contemporary American society, economically disadvantaged youth are often in "no man's land" with respect to obtaining and holding employment. Typically, they have a debilitating lack of saleable skills (Feck, 1971) which would make them attractive to employers. In addition, and probably equally important, they have work-related attitudes, values and habits (work ethics) which are at odds with those accepted by the dominant culture (Goldberg, 1967; Sebald, 1968; Anderson and Smith, 1969), and which seem incompatible with success in the world of work.

Efforts are being made to remedy the lack of technical competence. Various methods are used in this enterprise. Secondary and post-secondary vocational education and employment and training activities administered under the Comprehensive Employment and Training Act 1978 Amendment (CETA) are two avenues open to youth for the increase of technical skills. The CETA system uses skills training and work experience designed to help disadvantaged youth become familiar with the world of work (Employment and Training Report of the President, 1978). Such efforts to increase technical skills have been rewarded with encouraging success.

Remediation of poor work attitudes, values and habits, labeled "affective work competencies" (Kazanas, 1978), is not so easily accomplished by the traditional techniques often used. While primary research has suggested that these abilities could be learned (Kazanas,

1972), later studies (Morgan, 1980) demonstrated that for high school students it was difficult to produce gains in desirable work attitudes by use of a series of audio-visual training modules and class discussions.

This study assessed the effectiveness of Morgan's slide-tape training modules when used with a group of economically and educationally disadvantaged Alternative School students. The Alternative School students were given the special training and then their affective work competencies were compared with those of matched students in the traditional school system. Results of the study point out the difficulty of teaching concepts in the affective domain when our goal is for students to internalize those concepts. However, interesting information did emerge concerning the nature of affective work competencies--their interrelationships with each other--and the relationship of affective work competencies with academic ability. These results give encouragement to those who believe that efforts should be made to help all students and trainees increase those valuable work attitudes which will help them succeed in a competitive labor market.

SUMMARY AND CONCLUSIONS OF THE STUDY

This study reports a project which used slide-tape teaching strategies to enhance affective work competencies in economically disadvantaged Satellite School students. At the same time this study was being conducted, the teaching modules were being used in a senior high school for "traditional" students. It turns out that the modules

failed to significantly enhance affective work competencies in the traditional students. The results of the present research appear to confirm those findings. When a group of economically disadvantaged Satellite School students was presented with the slide-tape teaching modules, there was little or no difference between the Experimental and Control groups of this study which could be attributed to the use of the teaching modules.

However, these results must be placed into perspective. The first consideration is that viable results, even when they are not significant, do provide a useful contribution to knowledge about the subject. Such results can indicate methodologies which are ineffective, and can save the expenditure of funds on those techniques. In this case, a "canned" method of teaching was used: students were exposed to slide-tape presentations over a 5-day period and were given no other training to enhance effective work competencies. No efforts were made to integrate these concepts into other class activities, and no long-term approaches were used. Given the importance of affective work competencies to the employability prospects of students, a long-term approach seems worthwhile even though it is more costly. However, because of its cost-efficiency, the short-time method needs to be tested in all situations in which it may be useful.

This research showed that the slide-tape method of teaching affective work competencies was not effective with these students. Therefore, funds need not be expended to further develop this approach. Rather, attention should be turned to other methods which might have

more potential for integration into other educational activities--for example, after the pattern of the career education concept. One approach which might have promise is to use classroom teachers as a kind of advisory committee to assist in the development of teaching methods which can be easily used in existing classes. Such a group of professionals could review recent research, as well as available curriculum materials, to develop those most useful for students.

Another finding is that the students in this study had learned or acquired certain affective work competencies independently of academic achievement. These results suggest that affective instruction of these desirable work habits and attitudes would be of great value to students with low academic achievement. In the absence of strong academic skills, a high degree of affective work skills would be in itself a valuable aid to employability in the students.

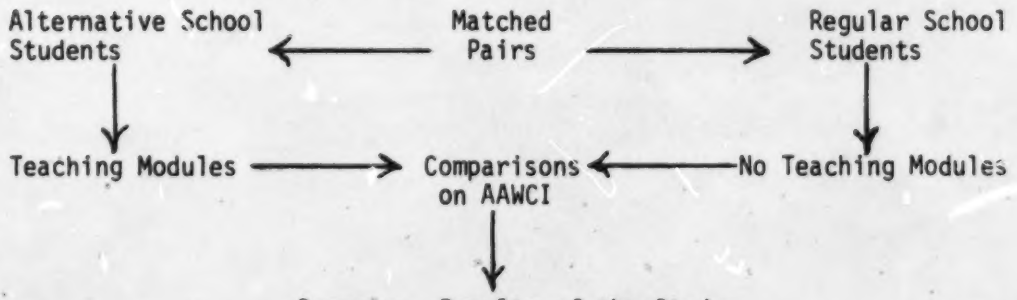
In terms of the overall results of the instructional models on economically disadvantaged and non-disadvantaged students, it was found that no demonstrable benefits occurred for the students. These results agree with other current research on the subject. Yet, in spite of these negative results, in our view this was an important study and leads to the conclusion that alternative teaching methods should be attempted. The additional information obtained through the study shows considerable promise for helping devise alternate methods of instruction. Of these findings, the most important was the discovery that there were two levels of correlation among the scales and that the higher level correlations suggested pedagogical relationships which can

be used by teachers. The scales of Conscientiousness, Organization and Self-Control are highly related to each other and to Enthusiasm, and the scale of Ambition is highly related to Enthusiasm. From these relationships, a case can be made for using the AAWCI scale and the overall concept of Enthusiasm as the central point of reference for the teaching of affective work competencies.

Figure 1 summarizes the methodology and results of this study. It illustrates the matched pair design which used, the groups of students who participated in the investigation, and describes the major findings of the study.

FIGURE 1

SUMMARY OF METHOD AND RESULTS OF THE STUDY



Summary: Results of the Study

1. The teaching modules did not increase affective work competencies.
2. The slide-tape method used was not effective.
3. Affective work competencies seem to be acquired independently of academic skills.
4. Enthusiasm is the affective work competency which most strongly relates to all the offers.

THE ALTERNATIVE SCHOOL PROGRAM

The Youth Employment Demonstration Projects Act (YEDPA) provides for education and training designed to facilitate transition of economically disadvantaged youth from school to work. The youth served by this legislation fall below Department of Labor (DOL) poverty guidelines and are dropouts or potential dropouts. Because little likelihood exists that the young people in this sector will complete high school or obtain gainful employment, various approaches have been used to help them develop their potential as productive members of society.

One of these approaches is the alternative school. A fairly recent development, the alternative school combines individual instruction and carefully selected work experiences to help young people gain academic and practical skills they will need to succeed in the larger environment of the labor market.

There are at least two popular models used to implement alternative schools. One uses the idea of "mainstreaming," in which students remain in the traditional high school environment except for special classes or activities of an alternative nature. Another model uses the "separate site" concept, the theory that students who are not succeeding in the school system need to be placed in a different environment if they are to make progress. Both models have unique advantages and disadvantages and either may be selected because of a school district's characteristics.

In this study, the "separate site" model was used. Students attended the alternative school (a separate site from the sending schools) for at least half-day sessions and participated in other activities during the rest of the day. These additional activities consisted of: pre-vocational instruction, self-evaluation, guidance, GED classes, or regular classes at the sending school and at the Area Vocational Technical School. All activities outside the satellite school were planned and conducted to meet the individual needs of each student.

The School District

The Joplin R-VIII School District, which serves approximately 8,300 students, was the site chosen for conducting this study. The District contains two high schools: Memorial High School and Parkwood High School. The overall dropout rate for the District is consistently larger than the statewide rate of 5 percent. Since dropout rates were larger than the statewide average, the District was considered to be in an "at risk" category, making it eligible for alternative school funding through the Missouri Division of Elementary and Secondary Education.

Alternative School Funding

The alternative school in the Joplin R-VIII District is funded through Title IV of the Comprehensive Employment and Training Act. Monies are dispersed through the Division of Manpower Planning (DMP), Missouri's Balance of State Prime Sponsor, and flow through the

Department of Elementary and Secondary Education (DESE). The Project staff and management are employed by the participating school district, and administrative control is exercised at the local level.

Characteristics of Students in the Satellite School

The satellite school serves students who are economically disadvantaged and who are performing well below their capacity, both socially and academically. Students participating in the alternative school program exhibited at least three of the following characteristics:

1. Inability to function properly within the traditional classroom setting as revealed by (1) achievement test scores compared with performance and (2) ranked comparisons in academic achievement and performance.
2. Sufficient potential to benefit from the programs (based on individual IQ scores).
3. General recognition as an underachiever (below average for potential).
4. Failure to establish goals regarding occupational future.
5. A pattern of behavioral problems based on a minimum of three (3) referrals to a counselor or assistant principal due to inappropriate behavior.
6. A pattern of absenteeism and tardiness--absences in excess of six (6) per class, per semester; tardies in excess of eighteen (18) per semester.
7. A poor self-image as established by the Tennessee Self-Concept Scale.
8. A stressful family situation which appears to have had a detrimental effect on academic and social success (sibling dropout history, juvenile offenses, broken home, runaway record, etc.).

9. Identification as a potential dropout (verbal expression to counselor or teacher).

10. Little or no participation in school activities.

Parkwood and Memorial High School students who met these criteria were referred to the satellite school.[1] Students were then interviewed by counselors for confirmation of eligibility.

In general, those who participated in the program can be considered to represent a population of 9-12th grade economically disadvantaged students. They were dropouts or potential dropouts who, in most cases, were deficient in basic academic skills, and were considered to be underachievers by teachers and counselors.

Another characteristic of satellite school students is their relative unfamiliarity with the world of work. Most of them had little or no work experience or knowledge of the labor market's expectations or demands on workers.

Because they have not developed a work ethic, or have developed one that is inappropriate, they represent a segment of the population which is not likely to become easily employed. Special efforts are considered necessary to provide these students with the experiences which will assist them in finding and keeping employment. The satellite school, an alternative school, is one of those efforts.

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[1]Criteria for selection of alternative school students are taken from a locally developed procedures manual used by counselors in the sending schools to identify potential alternative school students.

The Program

The goals for the Joplin Satellite School YETP Program are:

1. To keep potential high school dropouts in school.

2. To enhance the job prospects and career opportunities of economically disadvantaged youths by providing an alternative educational environment, emphasizing basic skills, counseling, and vocational exploration.

3. To provide participants with meaningful work experience which will assist youth in making the transition from school to work.

To implement these goals, three options were made available to students enrolled in the program. Based on counselor and teacher recommendations, interviews, school records, student and parent requests, students were assigned to one of four program options:[2]

A) Some students enrolled half the day in the alternative school program and half the day in a "work experience" program.

B) Other students attended Adult Basic Education Classes in the satellite building and participated in supervised work experience under the supervision of the satellite school staff.

C) The remainder attended the satellite school half the school day and the referring school the remainder of the day.

D) The students who had made a vocational commitment attended the satellite school half the day and the area vocational technical school the other half day.

Channels of communication were maintained throughout the school year. At each referring school, a vice-principal and a counselor were

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[2]Goals are taken from the LEA/YETP Annual Report FY'79 by John Schell of the Missouri Department of Elementary and Secondary Education.

designated as liaison staff between the parent high school and the satellite school.

THE RESEARCH QUESTIONS ADDRESSED BY THE STUDY

Although many skills and abilities are required for successful workers in a complex industrial society, most authorities agree that affective characteristics are one of the most important single predictors of employment success. Affective characteristics are those acquired behavioral dispositions which are displayed by workers in employment situations. Their work attitudes, values, and habits are factors which can be strongly associated with employee success (Schmidt, 1970), or failure (Wilson, 1973). They are the non-technical aspects of the work situation (Garbin, 1967) and are of considerable importance.

Most researchers have spoken as with one voice about the relationship between affective behavior and worker success. Boynton (1955) pointed out that the largest percentage of employees are either discharged or not promoted for reasons concerning social competencies on the job (affective work competencies). Burns (1973) found that personal traits limit progress and promotion of people in organizations. Bryant (1970) considered intrapersonal and interpersonal factors to be major categories of workers' behavior attitudes.

The obvious questions of interest for those involved in training individuals for employment are these: If affective behaviors are so important, can they be learned? More importantly, can they be

taught? If so, can they be taught to economically disadvantaged youth in a CETA program? And, is it possible to develop effective strategies and materials for teaching desired affective behaviors to this group of potential employees? These questions have implications for all who work in employment and training.

Answers to these questions may be partially found in previous literature and research on the subject of work attitudes. We do know, for example, that attitudes towards work appear to be formulated through an interaction between one's self concept and life experiences as determined by environmental perception (Asghar, 1974). These attitudes are highly visible in the workplace, and they may be influenced by other factors, as well. Kazanas and Wolfe (1972) reviewed the literature on work habits and vocational education, and found certain work habits to be highly desired in employees by employers. They concluded that these work habits were necessary for workers' success, and that they could be learned. In a later work (Kazanas, et al. 1978), the term "affective work competencies" (AWC's) was used to describe these work attitudes, values, and habits.

In recent years, various researchers (Blumenstein, 1976; Klubnik, 1977; Campbell, 1978; Leach, 1978; Nelson, 1973; and Jump and Trotter, 1978) have attempted to study various aspects of teaching affective work skills. These studies have tended to focus on local needs and few have included empirical research. Those that did reported that the instruction appeared to be of limited value.

Morgan (1980) has developed curricula intended to help teach affective work competencies, which are desired by employers, to high school level students. The teaching strategies were based on the concept of affective work competencies, a group of desired work habits, attitudes and values. They consisted of a series of slide-tape presentations which focused on key affective work competencies which had been satisfied in ongoing research at the University of Missouri-Columbia. Morgan's teaching strategies were used in the Joplin satellite school study to help answer the following specific questions:

1. Can economically disadvantaged students be taught effective work competencies by use of Morgan's teaching modules?
2. How is academic achievement in disadvantaged students related to the learning of affective work competencies?
3. What is the overall relationship between economically disadvantaged students who have had the teaching modules and those who have not, in terms of affective work competencies?
4. What additional information can be gained about the way in which disadvantaged students learn good work attitudes, values, and habits?

Answers to these questions were sought by studying the effects of special instruction in good work habits, attitudes and values on disadvantaged high school students in an alternative school setting within the Joplin R-VIII school system.

METHODOLOGY

Alternative school students attending the satellite school received training designed to enhance their affective work competencies.

They were then compared with students from traditional high schools in terms of:

1. Affective work competencies, and
2. General academic achievement.

Affective work competencies were measured by the Abridged Affective Work Competencies Inventory (AAWCI), an instrument developed by a team of researchers at the University of Missouri-Columbia, and academic achievement by the Wide Range Achievement Test (WRAT).

Design of the Study

Because of the small sample size, a matched pairs, posttest only design was selected for the study. This design was used to compare satellite school students with "traditional" high school students on the two types of variables: (1) Affective Work Competencies and (2) Scholastic Achievement. For each satellite school student, a counterpart was selected from the public school system by use of the following characteristics: (1) potential eligibility for the satellite school, (2) age, (3) sex, (4) race, (5) IQ, and (6) economic disadvantage. For the initial satellite school sample of 39 students, matched counterparts were identified by public school counselors according to the above characteristics.

The students from the satellite school were given the affective work competencies teaching strategies (modules), as amplified by related classroom activities. The control group of matched students in traditional school settings were given no affective work

competencies training and no related activities. The two groups of students were then compared in terms of their differences on work attitudes and general academic achievement.

THE TEACHING STRATEGIES

The instructional modules for teaching affective work competencies (Morgan, 1980) are based on a factor analysis of the Affective Work Competencies Inventory (AWCI) from a sample of 1497 industrial workers (Petty, 1978), industrial supervisors and vocational educators. Five relatively pure factors emerged from the factor analysis procedure when high-loading AWCI (a lower version of the AAWCI) items were grouped together according to their shared characteristics and were given the following names: (1) Ambition, (2) Self-Control, (3) Organization, (4) Enthusiasm, (5) Conscientiousness. These five factors comprise 45 of the original 95 AWCI items and accounted for 76.38 percent of the variance in the original items. The 45 items which represent these factors are collectively named the Abridged Affective Work Competencies Inventory (AAWCI), and are the AAWCI scales of this study.

Seven lessons prepared by Morgan were used in this investigation. They are collectively referred to as the Affective Work Competency Teaching Modules (AWCTM). There was a module for each one of the five scales, a general, or orientation, module, and a summary and review module.

The satellite school students were presented the slide/tape affective work competencies modules (AWCTM's) on the following subjects:

Lesson #1 "Introduction"

Lesson #2 "Ambition"

Lesson #3 "Self-Control"

Lesson #4 "Organization"

Lesson #5 "Enthusiasm"

Lesson #6 "Conscientiousness"

Lesson #7 "Summary and Review"

The total program was administered to students over a period of five school days. Each session used a moderator to reinforce the points made by the slide/tape presentations.

Moderators encouraged students to relate personal job and work experiences to topics introduced by the modules. Students discussed employment and work situations of self-control, enthusiasm, ambition, organization, and conscientiousness. Acceptable and unacceptable job site behaviors were also covered in class to amplify the modules' effects.

TESTING FOR DIFFERENCES

After selection of matched "regular" students for each of the satellite school students, only the satellite students were given instruction using the affective work competencies teaching modules. Both groups, the experimental group from the satellite school and the

control group of matched students, were then assessed by means of two instruments: (1) the Abridged Affective Work Competencies Inventory (AAWCI), and (2) the Wide Range Achievement Test (WRAT). Scores of the two groups were then statistically analyzed and compared to provide answers to the research questions.

A description of the overall research design used in the study is given in Figure 1. As can be seen from the flow chart, control was obtained by using a control group equated to the experimental group in terms of characteristics thought to be significant, or those mandated by law for students enrolled in the satellite school program. Thus, much of the weakness engendered by a small sample size was balanced by the strength of a carefully selected control group which matched the experimental groups on important variables.

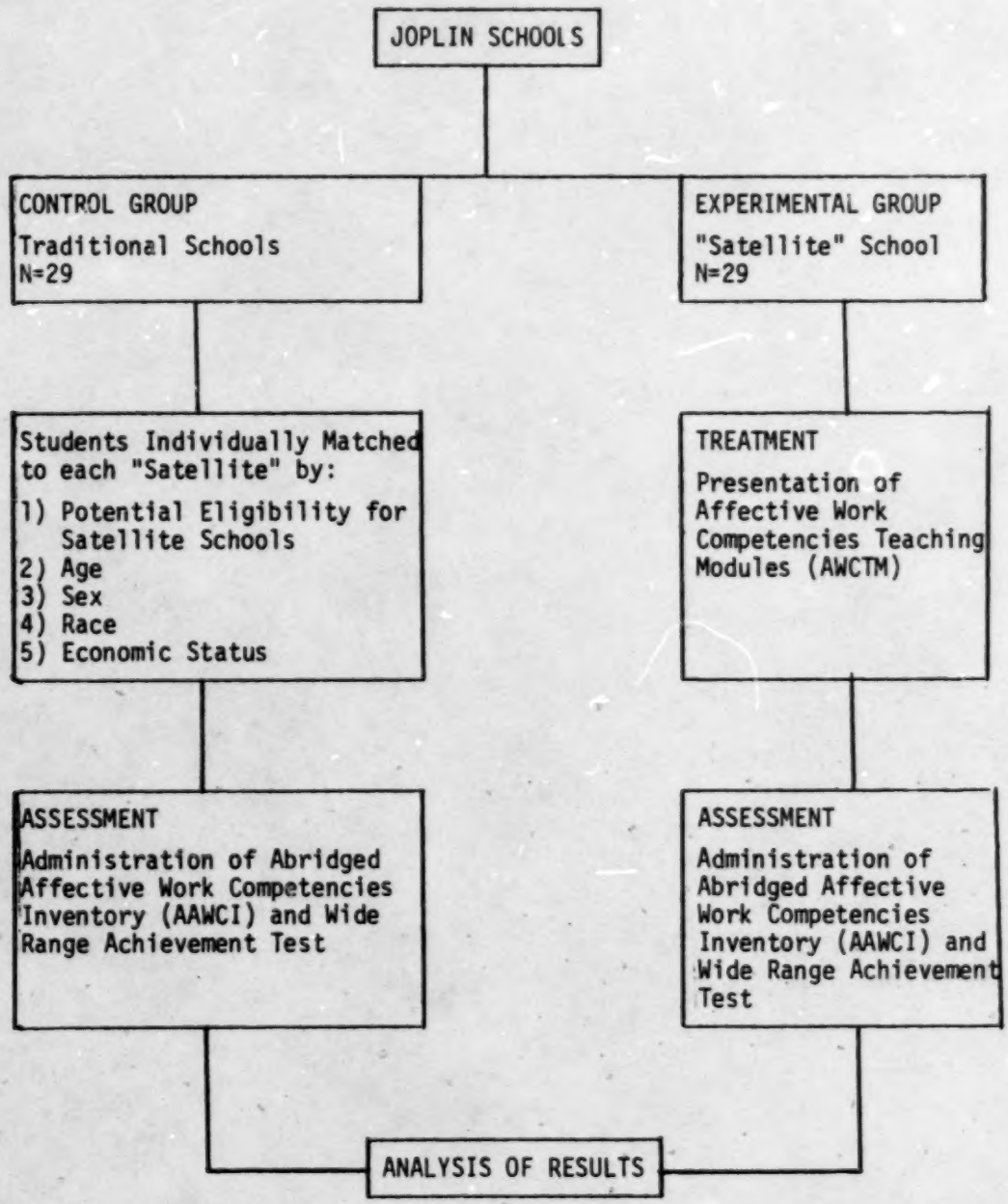
Instrumentation Used in the Study

Comparisons between experimental and control groups were made in terms of two instruments: (1) The Abridged Affective Work Competencies Inventory (AAWCI) and (2) The Wide Range Achievement Test (WRAT). For the Abridged Affective Work Competencies Inventory, the five scales of ambition, self-control, organization, enthusiasm, and conscientiousness to measure work attitudes were used. For the WRAT, Reading, Arithmetic, and Spelling scores were used as measures of achievement.

The scales used for the Abridged Affective Work Competencies Inventory were derived from responses of a large number of people to a previous instrument, the Affective Work Competencies Inventory (AWCI).

FIGURE 2

FLOW CHART OF EXPERIMENTAL DESIGN FOR JOPLIN STUDY



Some of the data from these studies are reviewed here to provide reference points for understanding the way in which affective work competencies have been measured. The results of two factor analysis studies were consulted in developing the scales used for the AWCI in the present research.

Factors Measured by the AAWCI in this Study

Recent investigations into the factorial structure of the AAWCI (Braucle, 1979) suggested that for economically disadvantaged youth, affective work competencies group into five major areas:

1. Neatness and Reliability
2. Self-Control/Consideration
3. Self-Organization
4. Ambition
5. Independence/Initiative

Since these factors were established on a norm group of economically disadvantaged youth very similar to that included in this study, they were considered useful reference points for the present investigation.

Another recent research effort provided the AWCI scales actually used in the study. In that investigation, Brauchle, Morgan and Petty, in an unpublished 1979 study, factor analyzed the responses of 1487 industrial workers, industrial supervisors, and vocational educators on the 95-item Affective Work Competencies Inventory (AWCI). Factor analysis yielded a set of five factors slightly different from the five given above.

For this group of respondents, the factors of ambition, self control, organization, enthusiasm, and conscientiousress appeared to best explain the test variance. These factors were therefore used for the scales in the present study. Morgan's teaching modules for affective work competencies were built around these five factors. The 45 items which contributed most to these factors were summed for the factors, and the five groups thus obtained were used as "scales" of the Abridged Affective Work Competencies Inventory (AAWCI).

Reliability of the Scales

One method of establishing the usefulness of measures on an inventory such as the AAWCI is to assess the reliability of the things being measured. That is, with what consistency or accuracy the constructs (in this case the scales) are applied as a standard of measurement to the domain which is assessed.

For each of the five scales used in this study, a coefficient alpha was computed. Those reliabilities are given in Table 1 below.

Table 1

Reliability Indices for the Scales of the AAWCI for Experimental and Control Groups

Scale	Number of Items	Coefficient Alpha*
1 (Ambition)	4	.77
2 (Self-Control)	8	.76
3 (Organization)	4	.73
4 (Enthusiasm)	16	.80
5 (Conscientiousness)	13	.69

As can be seen in Table 1, the reliability of the five AAWCI scales for satellite school participants is at a very respectable level. All scales demonstrated an internal consistency comparable to or above that used in many commercial instruments which measure affect. Moreover, recent factor analytic research (Brauchle, 1979) suggested that for disadvantaged youth, the AAWCI measures five clusters very similar to those defined by industrial supervisors and workers. These clusters, though differently named, are similar in content and reliability to the above scales, as indicated by Table 2.

Table 2

AAWCI Scales from Industrial Supervisors/Workers and Clusters for Disadvantaged Youth

AAWCI Measures for Industrial Workers/Supervisors			AAWCI Measures for Disadvantaged Youth		
Scales	No. Items	Coeff.	Clusters	No. Items	Coeff.
1 (Ambition)	4	.77	1 (Neatness)	5	.77
2 (Self-Control)	8	.76	2 (Self-Control)	6	.75
3 (Organization)	4	.73	3 (Self-Organiza.)	4	.73
4 (Enthusiasm)	16	.80	4 (Ambition)	10	.80
5 (Conscientiousness)	13	.69	5 (Independence)	5	.68

While the semantic content and the internal consistencies of the scales and the clusters are similar, the two sets are made up of different AWCI items and are thought to measure slightly different constructs. Of the two, the scales used by Morgan were employed in

the study for two reasons. First, they had been established on a large sample (N=1487) of industrial workers and supervisors and vocational educators. And second, it was this set of "Factors" from which the basis was formed for the instructional modules administered to students as the "treatment" of this study. The five "Factors" which had been isolated in previous AWCI research became the five AAWCI "Scales" used in this study: (1) Ambition; (2) Self-Control; (3) Organization; (4) Enthusiasm, and (5) Conscientiousness.

RESULTS OF THE STUDY

Method of Analysis

It was important, for purposes of statistical analysis, to establish to what extent the experimental and control groups could be considered to represent the same population. Although the pairs were matched so that experimental and control groups would be approximately equal in important characteristics (age, sex, race, IQ, economic disadvantage), the experimental group alone had been given the teaching modules. We would expect this treatment to make a difference in the score of the experimental group as compared with the scores of the control group. But, assuming both groups were drawn from the same basic population, we would not expect the differences to be excessively large.

For this reason, the numerical factor scores (AAWCI scales) were correlated across experimental and control groups. The results are given in Table 3, which shows the relationship of scores on all

five scales for the satellite school students (E_1) through (E_5) with the scores on the same factors for the Traditional Students (C_1) through (C_5).

Table 3

Correlation of Scale Scores for the Experimental (E) and Control (C) Groups

Scales	C_1	C_2	C_3	C_4	C_5
E_1 (Ambition)	.49*				
E_2 (Self-Control)		.09			
E_3 (Organization)			.10		
E_4 (Enthusiasm)				.26	
E_5 (Conscientiousness)					.18

*Indicates correlation significant at p = .05.

Table 3 indicates that in general, significant correlations did not exist between the experimental and control groups. However, in one variable (Scale #1--Ambition), a significant correlation was observed between the groups.

Since the sample size was small (N=54), a multivariate analysis of variance was not considered appropriate. The five scales which were used had been derived through an orthogonal rotation method of factor analysis. For the purposes of this study, they were considered to be orthogonal (uncorrelated) with regard to each other and univariate tests of significance were used.

In the cases when scales did not show significant correlation between experimental and control groups (Scales 2, 3, 4 and 5) the independent t-test was used to test the degree of differences which existed between the groups on these measures. For the scale which showed significant correlation between groups, the dependent t-test was used.

Question 1: Can economically disadvantaged students be taught affective work competencies by the use of Morgan's (1979) teaching modules?

Descriptive statistics for the responses of the experimental (E) and control (C) groups on the five scales of the AWCI are given in Table 4. It can be seen that the means of the experimental group

Table 4

Descriptive Statistics for the Experimental and Control Groups' Responses

Scale	Type	N	Mean	Standard Deviation	Standard Error
Ambition	E	27	15.33	2.62	.50
	C	27	15.93	2.67	.51
Self-Control	E	27	31.44	4.74	.91
	C	27	33.15	2.94	.57
Organization	E	27	16.37	3.20	.62
	C	27	17.44	2.44	.47
Enthusiasm	E	27	64.93	7.27	1.40
	C	27	54.81	5.75	1.10
Conscien-tiousness	E	27	55.04	6.67	1.28
	C				

tended to fall slightly below those for the control groups, and that the standard deviation of scores in the experimental groups were in some cases larger than for the control groups. While at first glance this might seem to suggest that the special instruction did not help the satellite students, the larger dispersion of scores for the satellite school group suggests that a much wider range of affective work competencies exists in this group, making it more "difficult" to statistically raise the mean significantly.

There are several other possible explanations for this phenomenon. One of the first that comes to mind is a limitation in the matching process. These matching processes are usually imperfect. In this case, public school counselors were able to identify students for matching purposes who were very much like satellite students in terms of age, sex, race, IQ, and economic disadvantage. Due to the dearth of research into correlates of affective work competencies, however, it is not known whether other considerations not included in the matching might have greatly influenced the results. Since every added matching variable makes the job more difficult, researchers are usually constrained to use few variables. If unanticipated phenomena are affecting the results, they will probably be uncovered by future research.

Another possibility lies in differences in administration of the AWCI and the WRAT which might have existed beyond the control of the researchers or satellite school staff. For both experimental and control groups, students were called from classes to the counselor's

office, where they responded to the instruments. In the traditional school system, a visit to the counselor's office is usually regarded as a positive experience, since one is thereby allowed to leave class to receive some sort of personal attention. However, in the case of the satellite school, "counseling" sessions tend not to be regarded by students in so positive a light because: (1) satellite classes are more individualized and possibly more pleasing; (2) satellite counselors are actually teachers, and are not certified in the sense that public school counselors are; and (3) counseling sessions are associated with employability development plan (EDP) preparation, sometimes a difficult and tedious process. These qualitative differences in testing conditions may have influenced results.

Before, however, drawing any conclusions from the descriptive statistics, it is appropriate to assess the statistical significance of those differences which did exist and to make judgments of their importance. These tests are shown in Tables 5 and 6.

Table 5

Independent t-Tests for AAWCI Scales 2, 3 and 4

Scale	t-Value	Degrees of Freedom	Level of Significance
2 Self Control	-1.59	52	0.120
3 Organization	-1.39	52	0.172
4 Enthusiasm	-1.43	52	0.159
5 Conscientiousness	-0.131	52	0.896

As previously stated, scales 2, 3, and 4 were statistically uncorrelated between experimental and control groups, and an independent t statistic was computed for each. These results are given in Table 5. As indicated by this table, the mean differences between experimental and control groups were not significant at the .05 level of significance.

Table 6

Dependent t-Test for AAWCI Scale 1

Scale	t-Value	Degrees of Freedom	Level of Significance
1 Ambition	-1.15	52	.260

Likewise, when a dependent t-statistic was computed for Scale 1, (Ambition), no significant difference was observed for this variable. Table 6 shows there were no significant differences in experimental and control groups on the Ambition Scale.

These data support the conclusion that the use of slide-tape instructional modules, when presented over a five-day period, are not an effective method of enhancing desirable work attitudes, values, and habits in satellite school students.

Question 2: How is Academic Achievement in Disadvantaged Students Related to the Learning of Affective Work Competencies?

The assumption is often made that individuals who are not greatly talented in terms of academic skills are also deficient in the

ability to learn other useful things. Affective work competencies are essential equipment for success in the world of work and are therefore desirable in all workers. The question at hand is: To what extent can a lack of academic achievement in satellite students be expected to interfere with the development of affective skills needed for worker success?

To investigate the hypothesis that low academic achievement might be related to low affective work competencies, the five AAWCI scales were compared with the three subtests of the WRAT for satellite students and for traditional students. These comparisons were made by using the technique of canonical correlation analysis. This method, a generalization of multiple regression analysis, shows all existing correlations between two sets of variables. The interrelationship between affective work competencies (which are uncorrelated with each other) and WRAT scores is confounded by the way in which the WRAT scales (reading, spelling, and arithmetic) correlate with each other. Canonical correlation analysis can help "unscramble" these, and can present a clearer picture of relationships between the two sets of variables than many other methods of analysis.

Canonical correlation analysis between effective work competencies and WRAT scores were computed for the experimental group and for the control group. Statistical Analysis Systems (SAS) procedures were used (Barr, et al., 1979). The results are given in Table 7 and Table 8.

Table 7

Canonical Correlations Between Affective Work Competencies and WRAT Scores for the Experimental Group

	Canonical Correlation	Degrees of Freedom	Level of Significance
1st Canonical Variable	.63	15	.349
2nd Canonical Variable	.40	8	.689
3rd Canonical Variable	.28	3	.605

Table 8

Canonical Correlations Between Affective Work Competencies and WRAT Scores for the Control Group

	Canonical Correlation	Degrees of Freedom	Level of Significance
1st Canonical Variable	.63	15	.202
2nd Canonical Variable	.54	8	.386
3rd Canonical Variable	.22	3	.789

Clearly, the canonical correlation analysis results indicate that, for both groups, there is not a significant relationship between affective work competency scale scores (taken as a whole) and WRAT scores (taken as a whole) for either satellite or traditional high school students. Thus, in both a statistical and a practical sense, the presence or absence of academic achievement does not appear to significantly affect the development of affective work competencies in economically disadvantaged students.

Analysis of the correlation coefficients between the first canonical variable (the most important relationship) and all three WRAT scores shows some difference between the Experimental and the Control Groups. Tables 8 and 9 show the coefficients. These results suggest that for the Satellite School students (Table 9) the weak relationship which does exist between WRAT scores and affective work competencies is

Table 9

Experimental Group Correlation Coefficients Between the First Canonical Variable and All WRAT Scores

	Reading	Spelling	Arithmetic
Canonical Variable 1	.92	.64	.85

mostly influenced by reading and math achievement. For Traditional School students (Table 10), the relationship does not seem to be influenced by any of the WRAT scores. These differences are probably due to the students' reaction to the paper and pencil tests invoked and

Table 10

Control Group Correlation Coefficients Between the First Canonical Variable and All WRAT Scores

	Reading	Spelling	Arithmetic
Canonical Variable 1	-.22	.46	-.25

the conditions under which the inventories were taken, as discussed in a previous section. Further, the researchers concluded that the lack of a significant canonical correlation relationship renders these differences insubstantial.

Canonical correlation analysis on both Experimental and Control Groups together (a group of 54 economically disadvantaged youth) produced a significant canonical relationship between the AAWCI scales and the WRAT scores. That relationship is indicated in Table 11 which shows that the first canonical correlation, R = .5184, is significant at the .05 level. It describes a significant relationship between the linear combination of AAWCI scales and WRAT scores. The squared canonical correlation shows that 26.9 percent of the variance is shared by these two linear sets.

Table 11

Canonical Correlation Between AAWCI Scales and WRAT Scores for Experimental Plus Control Groups (N=54)

	Canonical Correlation (R)	R^2	Degrees of Freedom	X^2
1st Canonical Variable	.5184	.269	15	26.34*
2nd Canonical Variable	.3772	.142	8	11.16
3rd Canonical Variable	.2718	.074	3	3.72

*Significant at .05 level

To interpret the meaning of this relationship, it is necessary to examine how each set of variables (AAWCI scales and WRAT scores) contribute to the relationship (the factor structure) and to calculate the proportions of variance accounted for by each set. Table 12 shows the factor structure of AAWCI scales, and Table 13 the structure of WRAT scores.

Table 12

Factor Structure for AAWCI Scales

AAWCI Scale	Factor Loadings
Scale 1 Ambition	- 0.215
Scale 2 Self-Control	0.054
Scale 3 Organization	- 0.331
Scale 4 Enthusiasm	0.173
Scale 5 Conscientiousness	0.520

Table 13

Factor Structure for WRAT Scores

WRAT Scores	Factor Loadings
Reading	0.753
Arithmetic	0.343
Spelling	0.566

The factor structures indicate that for the combined groups of students, conscientiousness and a lack of organization contribute the

most to the relationship with WRAT scores (Table 12). For the WRAT scores, reading and spelling ability contributed the most to the AAWCI scales (Table 13). These results suggest, in general, only two affective work competency scales have much relationship with academic achievement.

To establish the degree to which the variance in AAWCI scales can be accounted for by WRAT scores, and vice-versa, the proportions of variance accounted for by each set were computed using the method suggested by Timm (1975:356-7). Results of these procedures are given in Tables 14 and 15.

Table 14

Proportion of Variance in AAWCI Scores Accounted for by the Significant Canonical Variate of WRAT Scales

AAWCI Scales	Variance Accounted For
Scale 1 Ambition	- .111
Scale 2 Self-Control	.028
Scale 3 Organization	- .172
Scale 4 Enthusiasm	.090
Scale 5 Conscientiousness	.270

Table 15

Proportion of Variance in WRAT Scores Accounted for by the Significant Canonical Variate of AAWCI Scales

Wrat Scores	Variance Accounted For
Reading	.390
Spelling	.178
Arithmetic	.293

From these data it can be seen that the AAWCI scales of Conscientiousness and Organization accounted for the greatest proportion of variance in the relationship with all the WRAT scores. Likewise, the WRAT scores of Reading and Spelling accounted for most of the variance in the relationship with AAWCI scales. However, the total variance explained by this canonical relationship is only 0.104 for the AAWCI scales and 0.167 for the WRAT scores. These redundancy indices give the amount of variance actually explained by both sets (from the viewpoint of each). Such relatively small indices of shared variance indicate that these disadvantaged students are able to acquire, or learn, affective work competencies whether or not their academic achievement is high. To put it another way, affective work competencies do not seem to be largely influenced by academic achievement in this group.

Question 3: What is the overall relationship, in terms of AWC's, between economically disadvantaged students who have and have not been presented with the teaching modules?

A discussion of overall relationships between the groups studied should begin with the caveat that the study was limited in its objectives. The results are therefore restricted in the broadness of interpretation. For example, in this experiment only one methodology of instruction was used, and it was administered during a compressed time period of five school days. Other instructional modalities and time frames were not used. Further, the modules presented information in what might be considered an authoritarian format. The effectiveness

of this type of presentation with disadvantaged students has not been clearly established, and in this study it was not compared with other styles of presentation. Therefore, the study's results should be seen within these perspectives.

In general, the overall effect of the affective work competencies training format on disadvantaged students did not significantly enhance the perceptions of affective work competencies. These results are in agreement with other work (Morgan, 1980), which was progressing at the same time as the present study. In Morgan's experiment, a sample of "traditional" high school students were presented with these modules and were then tested for possible gain in scores as a result of having experienced the instruction. Morgan failed to achieve significant gain scores in any of the affective work competency scales.

Both studies, taken together, compel the conclusion that the instructional slide-tape modules used in these instances are ineffective at enhancing the affective work competencies of either disadvantaged Satellite School students or typical Traditional High School students. However, these results should not discourage teachers from attempting to help students develop these most important abilities. The knowledge of techniques which do not work well is oftentimes as valuable as knowledge about what does work, since it can help us save time, money, and effort which could be more effectively used in other ways.

Many practitioners believe that efforts to enhance affective work competencies should, like career education, be infused into the

total educational experience of students. They feel that an accross-the-board commitment which is integrated into all studies will have the most beneficial and lasting effect on students' employability and skills. It is believed by the researchers of this study that future inquiry into this approach may yield the most productive results.

As a final note, it is believed by the researchers that benefits not measured by statistics were gained by students who participated in the study. While the exposure to the teaching modules did not effectively enhance affective work competencies in students, there is reason to believe the modules and the AAWCI made the students more aware of these competencies, and the behaviors associated with them. Such knowledge may be of great value when students need to put into practice these skills in the world of work.

Question 4: What additional information can be obtained about the way in which disadvantaged alternative school students learn good work attitudes, values and habits?

Having treated these issues addressed by the study, we now turn our attention to other findings which may be of value to teachers and counselors who work with disadvantaged students in an alternative school setting. These findings occurred partially as a result of the experimenters' prior experience in working with affective work competencies. Other parts grew out of analyses conducted during this investigation.

The structure of affective work competencies and the interrelationships between these abilities are of prime importance in designing and implementing effective teaching strategies. Students whose

employment prospects can be helped by enhancing such skills should have available to them instruction which obtains the greatest value for the amount of time and effort invested. Current research studies are suggesting that slide-tape curricula on affective work competencies, when presented in a concentrated manner, are not very effective at enhancing these attitudes (Morgan, 1980, and the present study). Brauchle's study (1979) of young CETA trainees found that the trainees and their supervisors did not perceive most affective work competencies in the same way. These studies all affirmed the importance of good work attitudes and from their results it can be inferred that alternate methods of instruction might be more effective. To design such methods, it is necessary to know more about how the competencies are related.

For the alternative school student in this research, the five AAWCI scales had some interesting relationships to each other. When the five scales (ambition, organization, self-control, enthusiasm, conscientiousness) were intercorrelated, they were all highly interrelated. Table 16 shows the associations among the scales.

The Affective Work Competency scales are all at least significantly interrelated at a significance level of $P = .05$, indicating some degree of commonality among them. Closer inspection of this phenomenon, however, reveals a secondary level of correlations among the scales. Of the ten correlations in the matrix, six are also significant at the level $P = .0002$, a very substantial jump in probability. The magnitudes, and of course the shared variances, of these higher level correlations are roughly twice that of the first group.

Table 16

Intercorrelation of the AAWCI Subscales

	Ambition	Organization	Self-Control	Enthusiasm	Conscientiousness
Ambition	1.0	.38*	.37*	.56+	.30*
Organization		1.0	.58+	.67+	.61+
Self-Control			1.0	.74+	.44+
Enthusiasm				1.0	.56+
Conscientiousness					1.0

*Significant at P = .05

+Significant at P = .0002

When the particular relationships are isolated, it can be seen that while all scales relate significantly to each other in a general way, certain of these scales form subgroups among themselves at a much higher level of significance.

Specifically, Scale 4 (Enthusiasm) is highly correlated to all of the other four scales: with Ambition, it correlated (.56); with Organization (.62); with Self-Control (.75); and with Conscientiousness (.56). No other scale is as highly related to all the others.

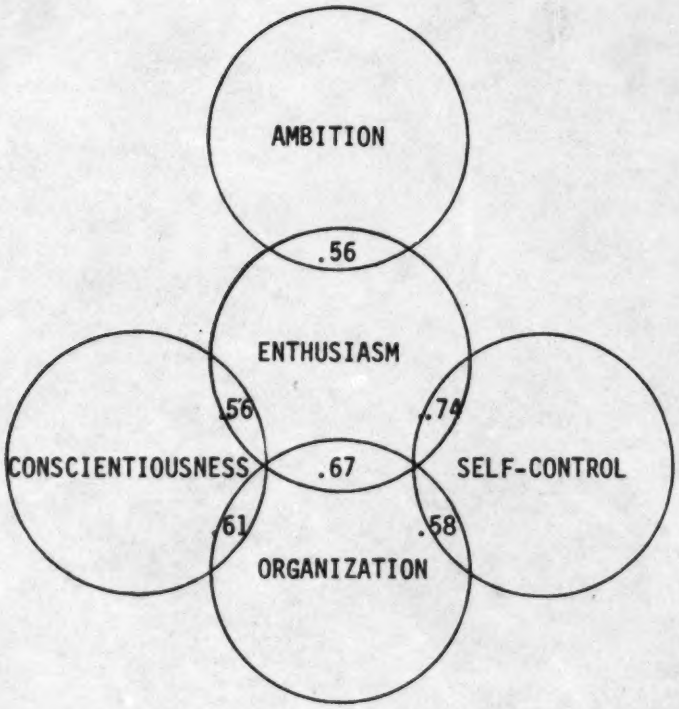
In a similar manner, Conscientiousness is highly related to Enthusiasm (.56) as we have seen, and it is also highly related to Organization (.61) but not to the others. Organization not only shares variance with Conscientiousness (.61) but also with Enthusiasm (.62) and Self-Control (.56). Self-Control relates highly to both Enthusiasm (.75) and Organization (.58). Ambition shows a high degree of correlation only with Enthusiasm (.51).

A pictorial representation of the highest level (P = .002) scale relationships for Satellite School students is given in Figure 3. It can be seen that Enthusiasm relates highly to all other scales, and that the scales of Conscientiousness, Organization and Self-Control are related to each other at the same time they are correlated to Enthusiasm.

These additional results indicate that for the economically disadvantaged youth in this group, Enthusiasm was the mediator for affective work competencies. Individuals who were enthusiastic in general about their work were more likely to also be ambitious and conscientious, have orderly habits and perceive themselves as having good self-control. Conversely, ambitious students were very likely to be enthusiastic, as were those who were conscientious, orderly and self-controlled. The results suggest that a focus on methods of creating enthusiasm for work in these students may result in enhancement of other desirable affective work competencies. Additional study should be made, of course, on the relationships between affective work competencies and the implications this has for teaching methodologies which will increase these skills in students.

FIGURE 3

INTERRELATIONSHIPS IN AAWCI SCALES



RECOMMENDATIONS

In view of the results of this study, the following general recommendations are offered:

1) Affective work competencies should be taught to all students in YETP programs.

2) A long-term strategy for teaching these skills should be developed.

3) In considering methods for teaching affective work competencies, teachers and counselors should be consulted for their views.

4) Teachers should be active in the development of usable and effective teaching methods for these skills.

5) Future methods for teaching AWC's should be integrated into existing curriculum, rather than be considered a separate subject.

6) Teaching methodologies should use enthusiasm as an anchor point for developing other affective skills concerning employment.

7) Short-term teaching techniques, such as the slide-tape modules used in this study, are not effective in enhancing AWC's in this type student. Therefore, they should not be further employed with expectation of demonstrable success.

8) Further exploration should be made of the effects of keying on significant competencies (such as Enthusiasm).

9) During the course of this study, instructors observed that students with some kind of work history seemed to benefit from the teaching strategies more than those who had not. Efforts to assure Satellite School students an opportunity for useful work experience should therefore be made a part of the curriculum, and should be included in any additional course of study which emphasizes affective work competencies.

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